

CASANDRO DAM
FCD GAGE ID# 7133

STATION DESCRIPTION

LOCATION - Casandro Dam is located west of downtown Wickenburg, Arizona just north of US 60 behind the bowling alley. Latitude N 33° 57' 57". Longitude W 112° 45' 01". The gage is located in SE1/4 NW1/4 S11 T7N R5W of the Wickenburg 7.5-minute USGS quad map.

ESTABLISHMENT - The gage was installed on August 14, 1996 following the completion of the dam.

DRAINAGE AREA - The drainage area at the dam is 1.24 square miles.

GAGE-- The recording gage is a pressure transducer type instrument. Elevation 0.19 feet gage height, or 2,136.85 feet NAVD 1988.

There are staff gages at this location. The staff gages are as follows.

0 - 5 foot staff, at 5.0 feet = 4.99 feet gage height, or 2,141.648 feet NAVD 1988
5 - 10 foot staff, at 10.0 feet = 10.07 feet gage height, or 2,146.728 feet NAVD 1988
10 - 15 foot staff, at 15.0 feet = 14.94 feet gage height, or 2,151.598 feet NAVD 1988
15 - 20 foot staff, at 20.0 feet = 20.03 feet gage height, or 2,156.688 feet NAVD 1988
20 - 25 foot staff, at 25.0 feet = 25.07 feet gage height, or 2,161.728 feet NAVD 1988

ZERO GAGE HEIGHT - Is defined as the ground at the inlet. Elevation 2,136.658 feet NAVD 1988.

HISTORY-- No previous gage at this location. Datum was changed for Water Year 1998 to better match the O & M black and white staff gages on the dam. These staff gages are more closely set to 0.0 ft as the ground at the inlet rather than the inlet invert. The inlet invert was used from the original installation to the end of Water Year 1997 as the 0.0 foot gage height as no staff gages were installed when the installation was done. The pressure transducer was replaced on January 5, 2000. Datum updated to NAVD 1988 from survey of January 24, 2012.

REFERENCE MARKS -

CAS-16 is an FCD brass cap near the top of the right bank of the emergency spillway at gage height 29.342 feet, or 2,166.000 feet NAVD 1988, levels of January 24, 2012. Elevation stamped on cap is 2,163.73 feet, NGVD 1929.

CHANNEL AND CONTROL-- The primary outlet for the dam is a 36-inch diameter culvert with two inlets. The auxiliary outlet is a spillway located in the center crest of the dam. Control for flows below about 20.25 feet gage height is culvert flow. Above 20.25 feet gage height, spillway flows begin.

PRIMARY / AUXILIARY OUTLET

The primary outlet is a 36" pipe which has a 16" diameter restricted ungated opening. A secondary auxiliary orifice with a 24" square opening is not considered in the stage-discharge relationship used in the ALERT system for this station. The ungated opening is at an elevation of 0.25 ft gage height.

The auxiliary spillway begins to overflow at 20.33 feet gage height (2155.0 ft -- from design plans). The spillway is an 80 ft wide concrete structure with an elliptical crest and a spillway chute slope of 3:1. The top of the dam is at 28.34 ft gage height (2163.5 ft -- from design plans).

RATING-- Current rating is rating #2. Rating #2 was created to account for a datum discrepancy. Rating #1 was computed using design information. Both the principle and emergency spillway stage-discharge ratings are based upon the design calculations provided by M. A. Lopez and the Design Plan Sheets.

The current capacity rating is rating #3. The rating was developed from new survey and capacity data received.

POINT OF ZERO FLOW - The PZF for the primary outlet is the inlet of the invert at 0.25 feet gage height, or 2,134.94 feet M.S.L. The spillway elevation begins to flow at 20.25 feet gage height, or 2,154.94 feet M.S.L.

DISCHARGE MEASUREMENTS-- Wading measurements could probably be made not far downstream for outflows. However, these outflows are relatively small (30 cfs at about 20 ft gage height). Direct measurements of spillway flows are not recommended.

FLOODS-- Sept. 10-11, 1996 maximum impoundment 6.1 ft, 23.5 ac-ft, 16.4 % full; Sept. 26, 1997 maximum impoundment 11.55 ft, 65 ac-ft, 45.5% full. (stages for both events given in new datum (i.e. inlet invert = 0.25 ft); August 31, 1999 maximum impoundment 6.47 feet, 24.6 ac-ft, 17% full. October 27, 2000, maximum impoundment 7.22 feet, 28.4 acre-feet, 20% full.

REGULATION-- The dam regulates natural flows in Casandro Wash.

DIVERSIONS-- None.

ACCURACY-- Good.

JUSTIFICATION-- Monitor FDCMC's Casandro Dam and provide data for flood response activities in the Town of Wickenburg.

UPDATE March 19, 2013

D E Gardner